Washington State On-Site Wastewater Technical Review Committee

Minutes for the December 10-11, 2003 Meeting

Approved on February 18, 2004 by Vote of the Committee

Washington State Department of
Health

For additional information, contact Larry Kirchner, TRC Coordinator, at 253-395-6754 or by email at Larry.Kirchner@doh.wa.gov

Washington State On-Site Wastewater Technical Review Committee

Minutes for the December 10-11, 2003 Meeting

Approved on February 18, 2004 by Vote of the Committee

CONTENTS

MEETING ATTENDEES

Members Present

Kevin Barry, Klickitat Cnty Health Dept
Pam Denton, Mason Cnty Health Dept
Kathleen Emmett, WA Dept of Ecology
Keith Grellner, Kitsap Cnty Health Dept
- Not present 12/11/03

Scott Jones, Scott Jones & Assoc
Eric Knopf, Indigao Design, Inc.

Members Absent

Glenn Herimann, Century 21/Heriman Speedy Tank Svc
Bill Peacock, Spokane Sewer Utility District

Guests Who Signed In

David Allen
Gifford Brown
Glen Helm
Jim Johnson
Blake Johnston
Alex Mauck
Mike Morris
Buster Nieshe
Peter Primeau
Stephen Wecker

DOH Staff

Mark Soltman, Wastewater Program Supervisor
Wayne Turnberg, TRC Coordinator
John Eliasson
Selden Hall
Larry Kirchner, Incoming TRC Coordinator

INTRODUCTION –

The two day meeting (December 10-11, 2003) was called to order by Mark Soltman at approximately 10:00 AM on December 10, 2003 (Day 1) and by Kevin Barry, newly elected Chair, at approximately 8:30 AM on December 11, 2003 (Day 2) in the conference room of the BEST Inn, Ellensburg, Washington. On Day 1 the meeting began with brief introductions by each committee member and a welcoming of the Committee's new members Kathleen Emmett and Keith Grellner. However, Kathleen announced that this would be her last meeting, and that the Department of Ecology would be appointing a new person, John Stormon, to fill the Ecology position on the committee.

The TRC voted on who would chair the committee during the next two years. By unanimous vote, the committee agreed that Kevin Barry would chair the committee during its 2003-2004 season, and Bill Peacock would chair the committee during its 2004-2005 season. Wayne Turnberg noted that the process of chair selection had not yet been addressed in the TRC's Process Manual. The committee concurred that this action should be included.

There was a discussion about Kevin Barry's term on the TRC. Kevin was under the impression that he had served the remaining portion of David Swink's term and therefore was eligible to serve an additional three year term. Mark Soltman agreed, that if this was the case, Kevin would not be exceeding the two – three year term limits for TRC members. It was agreed that staff would review the past history of TRC membership to clarify this.

Note: the result of that review was that David Swink had actually served his full term and, thus, Kevin will have completed the maximum of two-three year terms in June, 2004. The Environmental Health Directors will need to appoint a new representative for the Eastside EH Directors.

A quorum of members was not present on Day 2 for any voting on recommendations by the committee to proceed. As addressed in the TRC Process Manual, the DOH and TRC Chair discussed whether or not the meeting should continue, and decided to continue the Day 2 discussions anyway recognizing that voting on recommendations to the Department could not take place by the committee without a quorum of members present.

SUMMARY OF TECHNICAL DISCUSSIONS

Day 1

RDC Draft Rule Update – Mark Soltman provided an update on the recommendations of the On-Site Wastewater Rule Development Committee (RDC). Areas of on-site wastewater rule development recommendations included: 1) Treatment product performance levels; 2) Disinfection equipment testing and limitations; 3) Soil types; 4) Loading rates and soil dispersal design; 5) Development and minimum land area; and 6) Operation and maintenance. Specifics of Mark's presentation are found in a Powerpoint presentation, which is available in the TRC Meeting Notebook.

Mark noted that the RDC staff is currently writing a report about the RDC process and recommendations for the State Board of Health, and that minority reports will be allowed. The report will be presented to the SBOH during its March 2004 meeting in Olympia. Following the SBOH meeting, there will be a period for public comment on the draft rule, which will become a matter of public record. Other steps include meeting the State Administrative Procedures Act requirements, conducting a cost/benefit analysis as well as a Small Business Economic Impact Statement for new items addressed in the rule. Workshops

will be conducted at various locations around the state. It is anticipated that a rule adoption public hearing before the SBOH will take place in December 2004. Implementation of most sections in the rule will most likely take place within 30 days of adoption, while some sections may allow for implementation within a year from date of adoption.

TRC Future Technical Agenda Topics –Mark noted that the RDC also requested that the DOH and TRC address the following topics: 1) Residential septic tank effluent; 2) Treatment system performance threshold values suitable for "in-the-field" assessment with limited sampling; and 3) Review and expansion of the use of beds to all soil types.

Aerobic Treatment Units RS&G – ETV Revision – John Eliasson presented proposed changes to the Aerobic Treatment Unit RS&G developed by Laura White involving testing of Category 2 and 3 ATUs. Category 1 ATUs are designed to treat residential strength wastewater, Category 2 ATUs for treating high strength commercial wastewater, and Category 3 ATUs for treating high strength residential wastewater. This proposed change is based on recommendation to the DOH from the RDC and TRC. Under the proposal, Subsection 1.2.2 (b) pertaining to product testing of Category 2 and 3 ATUs would by revised to state:

> *1.2.2(b). Category 2 and 3 ATUs must be tested according to EPA/NSF Protocol for the Verification of Wastewater Treatment Technologies / EPA Environmental Technology Verification (April 2001). The testing program, which must be approved by DOH, may be performed by NSF or another approved testing facility as provided in the EPA/NSF Protocol for the Verification of Wastewater Treatment Technologies / EPA Environmental Technology Verification (ETV) (April 2001). On-going product certification and listing by NSF (or other entity) is not required.*

John noted that ATU systems currently approved as Category 2 or 3 ATUs will remain approved, and will not require retesting under the ETV protocol. The effective date of this revision will be December 31, 2003.

Upflow Filters Proposed RS&G – Selden Hall presented a proposed draft Proprietary Upflow Filters RS&G to the TRC. As identified in the draft, upflow media filters involve the biological treatment of septic tank effluent as it flow upward through filter media within a containment vessel. Selden noted that the intent of this RS&G is not for developing a generic non-proprietary upflow filter, and that it does not provide specifications about how to build a "generic" unit.

- Assignment: Selden requested that the TRC review the draft Proprietary Upflow Filters RS&G for discussion at the TRC's next meeting scheduled for February 18-19, 2004.

Glendon Biofilter Experimental System Testing Protocol – John Eliasson led the discussion on an October 16, 2003 request by Glendon Biolfilter Technologies, Inc. that the Glendon Biofilter M32, Glendon's third generation system, be added to the Department's List of Approved Systems and Products as meeting Treatment Standard 1 without disinfection for residential strength wastewater. The request was based on the use of a testing protocol similar to the one previously used for testing the Glendon Biofilter Models M3 and M31 units. The proposed testing protocol and test results were presented to the TRC and appear in the Meeting Notebook. The protocol used for the Glendon Biofilter M32 testing that was presented to the TRC had not been previously approved by the DOH, and issues identified in the

protocol review were outlined in the DOH December 23, 2002 response letter to Tom Teal, Glendon Biofilter Technologies. John determined that the request falls under the experimental system provisions of WAC 246-272-05001, which requires that the DOH obtain recommendations from the TRC before making a decision. Under WAC 246-272-05001, systems must be addressed under the experimental systems program if the DOH has not adopted recommended standard and guidance on which to base assessment of the system.

During the discussion, John displayed a Powerpoint slide outlining some of the identified differences between NSF Standard No. 40 and Glendon's testing protocol, which were identified as follows:

	Glendon Model M32 Testing Protocol	**NSF Standard No. 40**
Sampling frequency	2/week	5/week
Duration	302 days (43 weeks)	182 days (26 weeks)
Effluent data days	48 days	96 days
Influent data days	39 days	96 days

The first question before the TRC was as follows:

- Is the protocol used satisfactory for providing sufficient and valid performance data to list the Glendon Biofilter M32 system as meeting Treatment Standard 1 without disinfection?

Glen Helm noted that the unit was tested at one of his rental homes, and over the testing period, three different families lived in the home. John noted that the protocol for NSF testing is much more controlled regarding influent wastewater quality to ensure influent strength falls within typical residential strength wastewater and that it involves stress testing. Neither of these NFS testing requirements nor their intent were met for the M32 system.

Kevin Barry raised the question regarding whether or not the Glendon testing protocol was equivalent to the stringency of the NSF Standard 40 protocol.

It was noted during the discussion that the Department had previously approved the M1 and M31 models, and the question was raised about whether or not this request involved a modification to an existing approved system rather than an assessment of a new technology. The question was raised that if the treatment process is different, then what are the differences, and are they sufficiently different enough from the currently approved Glendon models to warrant testing of the new proposed model?

John summarized one difference in that storage in the M31 unit was in coarse rock, and in the M32 unit in PVC plastic tubing. Selden Hall noted that the M31 and M32 units had different shapes and volumes. The question was raised about whether or not there were differences in the other layers as well which were noted as being different between the approved and proposed models.

Kathleen Emmett noted that the TRC was being asked to assess an engineered product, which is typically done by licensed engineers.

- MOTION: Scott Jones presented the following motion: The protocol used to test the M32 unit is not the same as that of NSF Standard No. 40.

- SECOND: The motion received a second from Kathleen Emmett

- VOTE: By a vote of 4 in favor, one abstention, and the chair did not vote, the motion passed.

Eric Knopf raised the question about whether or not real world testing could be used in lieu of NSF Standard No. 40 protocols? Mark Soltman noted that under the experimental system program, alternative protocols may be used if approved by the Department.

Kathleen Emmett asked if the TRC could request additional information from the manufacturer, which would allow them to evaluate whether or not the M32 model was substantially different from the M1 and M31 models. Glen Helm raised concerns about proprietary secrets involved with Glendon models but agreed to share information with the committee regarding differences between the M31 and M32 units for TRC evaluation. Keith Grellner requested that the information be distributed to the TRC and reviewed before the next meeting for the TRC to make a recommendation on this question.

NEXT STEPS – Glen Helm agreed that Glendon would forward adequate proprietary technical information about the Glendon models to the DOH for distribution to TRC members for the TRC to review before its next meeting. The TRC agreed to address whether or not the M32 unit represented a substantially different technology, and whether or not the M32 testing protocol could be used in lieu of NSF Standard No. 40 testing at its next scheduled meeting.

Day 2

On Day 2, only five TRC members were in attendance. According to the Process Manual adopted by the TRC this did not constitute a quorum of six members for voting purposes. As identified in the TRC Process Manual, the DOH discussed with the TRC Chair whether or not to continue with the meeting. It was agreed that the meeting would continue, although without TRC authority to make recommendations to the Department because a quorum of members had not been reached.

Gravelless Drainfields RS&G – Sizing Reductions – The purpose of this discussion was to address issues relating to drainfield sizing reductions for gravelless drainfields. Wayne Turnberg informed the committee that the EZflow gravelless drainfield product had recently received DOH approval for drainfield sizing equivalent to gravelless chambers. Wayne noted that the TRC had recommended that the Department approve this request during its meetings held in 2000. The TRC's recommendation was made based on identified benefits of gravelless drainfield systems which:

1. Avoids the detrimental effect of gravel impacting and compressing the infiltrative surface
2. Avoids a silt layer (fines) on the infiltrative surface; and
3. Avoids the damaging effect caused by the transportation of gravel over the surface

Wayne noted that following the TRC's recommendation made in 2000, a discrepancy between the EZflow sizing request and the EZflow engineered sizing design had been noted which limited sizing reductions for some of its products. EZflow requested that its engineered design be re-evaluated. The re-

evaluation was based in part on a research published by Kevin White and Larry West that examined water flow through columns in the presence and absence of restricting layers, including fines. Based on this information, as well as other information provided by the manufacturer, the DOH approved reductions for the EZflow product that are equivalent to those allowed for gravelless chamber systems.

Carl Thompson of Infiltrator Systems presented information to the TRC suggesting two modifications to the DOH Gravelless Drainfield Recommended Standards and Guidance document. The first modification involved void capacity/volume storage and the second involved effective area per linear foot of a chamber based on the trench bottom width. Mark Soltman noted that the first issue had already been addressed by the draft onsite wastewater rule developed by the Washington State Rule Development Committee. With regard to the second issue, the following language was suggested to be included in the RS&G document:

In section 3.5.1(a) of the Gravelless Chamber RS&G, replace the second sentence with:

> *The effective area per linear foot of a chamber is based on the trench bottom width. The actual exterior width of a chamber must measure at least 90% of the trench width. If the exterior width of the chamber is less than 90% of the trench width, the effective area of the chamber is the actual exterior width of the chamber. Actual chamber exterior width shall be measured by a third-party testing firm.*

It was noted that this approach could also be applied to other gravelless products as well. Mark Soltman noted that Eljen had recently requested that its Eljen In-Drain product be approved for use in Washington State with reductions comparable to those allowed for gravelless chambers. Mark noted that the In-Drain language currently appeared in the RS&G in a guidance box, but that it could be incorporated as a recommended standard of the RS&G language. Once done, that product could be permitted by local health jurisdictions.

Mark also noted that the multiple pipe gravelless systems, which also currently appear in guidance boxes, could be pulled into the RS&G language that would allow local health jurisdictions to permit them. Mark advised the committee that this request had recently been made by Multi-Pipe for approval of its multiple pipe gravelless drainfield product.

The committee agreed that this issue raised by Infiltrator of effective area per linear foot of a gravelless drainfield product based on the trench bottom width had merit; that the principles seemed sound, and that language could be reworded to fit within the context of the RS&G. The committee also agreed that the issue should be addressed again at its next meeting in the presence of a quorum of members. Mark Soltman agreed to return with a rewrite of the draft language proposed by Infiltrator for TRC consideration in context with the RS&G.

Household Water Use and Drainfield Sizing – Dave Christensen of Public Health – Seattle and King County presented findings of a household water use / house square footage / drainfield sizing study conducted in King County, and Glen Patrick of the Washington State Department of Health presented statistical findings based on that study. In the study, two random samples of King County Houses were evaluated. The first, "Health 200, came from a sample o f 201 houses served by onsite septic systems. These houses are in 19 housing clusters in 10 separate water districts. County assessor's land records and water records for 2000 and 2001 were used. The second sample was compiled by Seattle Public Utilities in 1997, which is named "Questionnaire 1000." The study involved 978 sewered houses from Seattle, Bellevue, Highline, and Northshore water service districts in which water records were collected from early 1994 to 1996. For each house studied, they had collected the assessor's count of bedrooms, baths, and living area square footage and its local water district's count of roughly 2 years of water use. Most

water records are for 60-day periods and are recorded in 100s of cubic feet. The study and its findings are summarized in a summary document entitled "Wastewater Flows from Single Family Residences," a joint research project by Public Health, Seattle and King County and the Washington State Department of Health, Prepared for the TRC by David Christensen, RS, PHSKC.

No decision was requested from the TRC but Dave Christensen asked the members to look at the various scenarios to give input about which scenario best predicted household water use and drainfield sizing when looking at proposed building remodels.

It was pointed out by members of the TRC that Dave Christensen's data was a good reminder that although average water use for residential system design is used, there is a very wide range of actual water use depending on lifestyle, size of structure and other factors. LHD regulators, designers and engineers need to keep this in mind when designing or reviewing individual system proposals.

A copy of Christensen's follow-up summary mailed to the TRC Coordinator in February, 2004 and distributed to TRC members is included in the meeting binder.

ADMINISTRATIVE/OTHER ISSUES

Meeting Minutes Adoption – The adoption of meeting minutes for the June 10-11, 2003 co-TRC/ Washington State Rule Development Committee (RDC) meeting was scheduled for a vote on Day 2, December 11th. However, a quorum of members was not present on Day 2 for a vote to proceed.

Next Meeting – The next meeting of the TRC is scheduled for Wednesday, February 18, 2004 from 10:00 AM to 5:30 PM at the BEST Inn, 901 Berry Road, Ellensburg, WA.

LIST OF MEETING MATERIALS

Day 1

RDC Draft Rule Update / TRC Future Technical Agenda Topics –

- Final RDC Draft Onsite Sewage Systems Rule – 11/21/03 Draft
- TRC Update to Rule Development – Powerpoint Presentation
- Future Technical Issues – Powerpoint Presentation

Aerobic Treatment Units RS&G – ETV Revision –

- Aerobic Treatment Units RS&G (Draft ETV Language)

Upflow Filters Proposed RS&G –

- Proprietary Upflow Media Filters (Draft RS&G)
- Proprietary Upflow Media Filters (Powerpoint Presentation)

Glendon Biofilters Experimental System Testing Protocol –

- Letter from John Eliasson to Thomas Teal, November 17, 2003
- Letter from Thomas Teal to John Eliasson, October 16, 2003 with enclosures

Day 2

Gravelless Drainfields RS&G – Sizing Reductions –

- Powerpoint presentation by Wayne Turnberg - Gravelless drainfield sizing.
- White K and West T. In-ground dispersal of wastewater effluent: The science of getting water into the ground. Small Flows Quarterly, 4(2):28-35. Spring 2003.
- Powerpoint presentation by Carl Thompson, Infiltrator System entitled "Two suggested modifications to the gravelless drainfield system guidelines.
- Infiltrator Systems – Suggested modifications to gravelless drainfield system guidelines.
- Gravelless Drainfields RS&G, Draft revision to incorporate multi-pipe and geocomposite gravelless drainfield systems, and update of clarifying language for gravelless chamber drainfield system effective area (December 9, 2003).

Household Water Use and Drainfield Sizing –

- Christensen D. Wastewater Flows from Single Family Residences: A Joint Research Project by Public Health, Seattle and King County and the Washington State Department of Health – Project Summary. Fall 2003.
- Christensen D. Septic System Sizing in Washington State: The King County Water use Studies-Follow-up Summary. February 2004.